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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/678,741

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Hassan Mostafavi

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Vista IP Law Group (Varian)
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EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

02/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/678,741	Applicant(s) MOSTAFAVI, HASSAN	
	Examiner JOHN F. RAMIREZ	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32, 50-67, 75, 80-91 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/19/08 have been fully considered but they are not persuasive.

Applicant alleges that the Epstein et al. patent does not disclose or suggest the limitation or step of collecting data samples representative of a motion of an object as recited in claims 1, 15 and 23. However, the examiner of record respectfully disagrees with applicant's assertions. In the abstract of the cited reference, Epstein discloses that the data samples are collected from each heartbeat.

[57]

ABSTRACT

A method is disclosed to reconstruct multiphase MR images that accurately depict the entire cardiac cycle. A segmented, gradient-recalled-echo sequence is modified to acquire data continuously. Images are retrospectively reconstructed by selecting views from each heartbeat based on cardiac phase rather than the time elapsed from the QRS complex. Cardiac phase is calculated using a model that compensates for beat-to-beat heart rate changes.

In addition, the applicant acknowledges that the Epstein et al. reference specifically deals with motion of a heart, which beats by itself and is therefore not controllable. See applicant's remarks on page 15.

In column 3, lines 12-22, Epstein et al. disclose a method for prospectively gating imaging data acquired during successive cardiac cycles by the patient holding its breath.

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Prospectively gated, segmented k-space sequences have become popular for cardiac imaging mainly because images can be obtained in a breath-hold and therefore do not suffer from respiratory artifact. Images are formed by acquiring data over a series of heartbeats with data acquisition gated to the QRS complex of the ECG. For images to reconstruct properly, using current methods, the duration of image acquisition must be less than or equal to the duration of the shortest expected R—R interval. In practice, this usually means that the last 10–20% of diastole (~100–200 msec for a heart rate of 60 bpm) is not acquired.

Based on the above evidence, the Epstein reference deals with motion of the heart and therefore the rejection is maintained.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-14, 30-32, 50-67, 75 and 80-87 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In order for a method to be considered a "process" under §101, a claimed process must either: (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials). *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972). If neither of these requirements is met by the claim, the method is not a patent eligible process under §101 and is non-statutory subject matter.

With respect to claims 1, 30, 56 and 75 the claim language does not include the required tie that would provide the application of the test to the claim to reach the conclusion of non-statutory subject matter.

With respect to claims 2-14, 31-32, 50-67, 80-83, 86 and 87 depend on claims 1, 30, 56 and 75 respectively, therefore the claim language does not include the required tie and/or does not include the required transformation that would provide the application of the test to the claim to reach the conclusion of non-statutory subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

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Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-32, 53-56, 66-67, 75, 80-91 are rejected under 35 U.S.C. 102(b) as being anticipated by Epstein et al. (US5997883).

With respect to claims 15-29, 84-85, Epstein disclose an NMR system and a computer (107) for generating one or more images having means for collecting data samples representative of a motion of an object (see Fig.1; col. 2, lines 49-55); means for acquiring image data of at least a part of the object over a time interval (see Fig. 2, col. 2, lines 49-55); means for synchronizing the data samples and the image data to a common time base (col. 4, lines 23-57); means for generating one or more images based on the synchronized image data (col. 4, lines 58-65), wherein the means for generating is configured to generate an image using image data that are associated with a phase of the motion (see abstract, col. 4, lines 58-65), wherein the means for generating is configured to generate a first image using image data that are associated with a first phase of the motion, and a second image using image data that are associated with a second phase of the motion (col. 6, lines 42-67, col. 7 lines 1-22). Epstein et al. disclose a generation of multiple slice images from conventional spin echo sequence data results in slice images representing the heart at different phases of the cardiac cycle. Epstein also describes methods for generating time-lapse (i.e., "cine")

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images by using short repetition times and retrospective data resorting to bin the data according to cardiac phase (see abstract, col. 3, lines 45-67).

With respect to claims 1-14, 30-32, 50-56, 66-67, 75, 80-83 and 86-87, Epstein et al., teach all the structures as set forth above. The methods concerning the respective steps would be inherently met by the disclosure.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN F. RAMIREZ whose telephone number is (571)272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/
Supervisory Patent Examiner, Art
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/J. F. R./
Examiner, Art Unit 3737